

1. **SUBMIT TO:** PC07, LIANG/WIGDOR/FREDERICK
2. **Detectors, Focal Plane Arrays, and Imaging Devices (PC07)**
3. **ABSTRACT TITLE:**

Quantum Well Infrared Photodetectors (QWIPs) for Astronomy

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5. **PRESENTATION:** Oral Presentation

6. **ABSTRACT TEXT:**

In recent years, many research groups [1-4] in the world have demonstrated large format Quantum Well Infrared Photodetector (QWIP) focal plane arrays for various thermal imaging applications. QWIPs as opposed to conventional low bandgap infrared detectors, are limited by thermionic dark current and not tunneling currents down to 30K or less. As a result the performance of QWIPs can be substantially improved (orders of magnitude) by cooling from 70K to 30K. Cooling does not induce any nonuniformity or 1/f noise in QWIP focal plane arrays. In this presentation, we will ~~discuss the development~~ of high quantum efficiency long-wavelength QWIPs for astronomical applications. The research described in this abstract was performed by the Center for Space Microelectronics Technology, Jet Propulsion Laboratory, California Institute of Technology, and was jointly sponsored by the Ballistic Missile Defense Organization/Innovative Science and Technology Office, and the National Aeronautics and Space Administration, Office of Space Science.

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7. KEYWORDS:

Quantum Wells, Infrared Detectors, Focal Plane Arrays, Astronomy

8. BRIEF BIOGRAPHY

Sarath D. Gunapala received a BS in physics from the University of Colombo, Sri Lanka in 1980, MS and a PhD in physics from the University of Pittsburgh in 1986. He studied properties of thin films as a research associate at the Rutgers University from 1986 to 1988. From 1988 to 1991 he was a post doctoral member of technical staff at AT&T Bell Laboratories where he participated in the development of quantum well infrared photodetectors for infrared imaging. He joined NASA's Jet Propulsion Laboratory at California Institute of Technology in 1992. There, he leads the Quantum Well Infrared Photodetector (QWIP) research group. Dr. Gunapala has authored over 100 publications, including several book chapters on quantum well infrared photodetectors.